^{41}Ca(^{3}He,α) 1974Cl08

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Jun Chen	NDS 140, 1 (2017)	30-Sep-2015

$J^{\pi}(^{41}Ca$ g.s.)=7/2^{-}.

1974Cl08: E=20 MeV ^{3}He beam was produced from the Rochester MP tandem accelerator. Target was about 25 μg/cm^2 enriched Ca (81.8% in ^{41}Ca) on 30 μg/cm^2 carbon backing. Reaction products were momentum-analyzed with a split-pole magnetic spectrometer and detected with photographic emulsions. Measured $\sigma(\theta)$. Deduced levels, J, π, L, spectroscopic factors from DWBA analysis. Comparisons with available data.

Other:

1975Ap01: E=16, 27 MeV ^{3}He beams were produced from the FN tandem Niels Bohr Institute. Target was $CaCo_3$ evaporated onto a thin carbon foil (81% in ^{41}Ca, thickness of 20 μg/cm^2). Scattered particles were detected with solid state detectors. Measured $\sigma(\theta)$. Deduced levels, J, π, spectroscopic factors from DWBA analysis for 0, 3730, 4490 and 5610 levels.

All data are from 1974Cl08, unless otherwise noted.

^{40}Ca Levels

Cross sections given under comments are in mb/sr (1974Cl08).

Spectroscopic factor is defined as: $C^2S=(2j+1)/N\times(d\sigma/d\Omega)_{exp}/(d\sigma/d\Omega)_{DWUCK}$, where j is the angular momentum of transferred particle and N=23 is the normalization factor (1974Cl08).

E(level)	J^{π}[†]	L[#]	C^2S[#]	Comments
0	0$^+$	[3][‡]	0.98[‡]	C^2S: other: 0.92 (1975Ap01). dσ/dΩ(max)=1.65.
3350? *5*	0$^+$	[3][‡]	0.01[‡]	dσ/dΩ(max)=0.03.
3732 *5*	3$^-$	2	0.57	C^2S: other: 0.65 (unresolved from L=3, 3350 level,1975Ap01). dσ/dΩ(max)=0.59.
4488 *5*	5$^-$	[2][‡]	1.1[‡]	C^2S: other: 1.2 (1975Ap01). dσ/dΩ(max)=1.20.
5610 *5*		2	0.89	C^2S: other: 0.92 (1975Ap01). dσ/dΩ(max)=1.12.
5901? *5*		2	<0.003	dσ/dΩ(max)<0.005.
6029 *5*	2$^-$	[2][‡]	0.17[‡]	dσ/dΩ(max)=0.26.
6288 *5*		2	0.05	dσ/dΩ(max)=0.09.
6583 *5*		0+2	0.04,0.21	dσ/dΩ(max)=0.41.
6748 *5*	2$^-$	[2][‡]	0.22[‡]	dσ/dΩ(max)=0.31.
6930 *5*		2	0.07	dσ/dΩ(max)=0.10.
6950 *5*		2	0.06	dσ/dΩ(max)=0.13.
7112 *5*		0+2	0.13,0.20	dσ/dΩ(max)=0.66.
7531 *5*		2	0.03	dσ/dΩ(max)=0.04.
7656 *5*		2	1.3	dσ/dΩ(max)=1.93.
7693 *5*		2	1.3	dσ/dΩ(max)=1.88.
8374 *5*		(2)	0.08	dσ/dΩ(max)=0.09.
8423 *5*	2$^-$	[2][‡]	0.62[‡]	dσ/dΩ(max)=0.82.
8483 *5*		(2)	0.21	dσ/dΩ(max)=0.25.
8551 *5*	5$^-$	[2][‡]	1.7[‡]	dσ/dΩ(max)=2.14.
9035 *5*		0	0.33	dσ/dΩ(max)=1.47.
9080 *5*		(0)	0.06	dσ/dΩ(max)=0.29.
9145 *5*		(2)	0.11	dσ/dΩ(max)=0.13.
9222 *5*		(2)	0.05	dσ/dΩ(max)=0.08.
9435 *5*		(0)	0.05	dσ/dΩ(max)=0.22.
9460 *5*				dσ/dΩ(max)=0.21.
9559 *5*				dσ/dΩ(max)=0.38.

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^{41}Ca(^{3}He,α) 1974Cl08 (continued)

^{40}Ca Levels (continued)

E(level)	L[#]	C^2S[#]	Comments
9605 *5*	(2)	0.31	dσ/dΩ(max)=0.58.
9647 *5*	(2)	≤0.1	dσ/dΩ(max)≈0.10.
9673 *5*			dσ/dΩ(max)=0.89.
10055 *5*	0	0.98	dσ/dΩ(max)=6.07.
10214 *5*	0	0.18	dσ/dΩ(max)=0.76.

† From Adopted Levels.
‡ L-value fixed by adopted J^π considerations (1974Cl08).
# From DWBA fits to measured differential cross sections.